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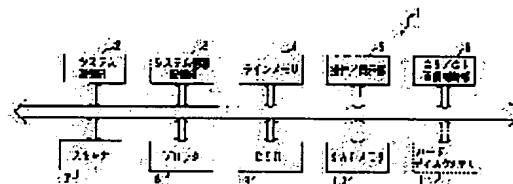
(72)Inventor : TSUJI MAKOTO

(54) FACSIMILE EQUIPMENT

(57)Abstract:

PURPOSE: To improve the use efficiency of a memory while facilitating block control over an image information storage memory by varying the size of control blocks of the image information storage memory according to its storage capacity.

CONSTITUTION: The facsimile equipment is equipped with an originally mounted SAF memory 10 and an optionally extended hard disk memory 11 for storing image information, and a system control part 2 which divides the storage areas of those memories 10 and 11 into plural control blocks and controls them; and the system control part 2 detects the memory capacities of the memories 10 and 11 and changes the setting of control block size, which is initially set corresponding to the memory capacity of the SAF memory 10, to control block size larger than the initial setting according to the total capacity of both the memories 10 and 11 once the hard disk memory 11 is extended.



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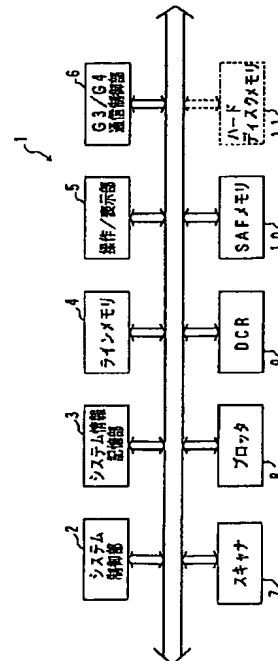
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(54)【発明の名称】 ファクシミリ装置

(57)【要約】

【目的】本発明は、ファクシミリ装置に関し、画情報蓄積メモリの管理ブロックのサイズをその蓄積容量に応じて変化させることにより、画情報蓄積メモリのブロック管理を容易にしながらメモリの使用効率を向上させることを目的とする。

【構成】画情報を蓄積する標準装備されたSAFメモリ10およびオプションで増設されるハードディスクメモリ11と、これらメモリ10、11の蓄積領域を複数の管理ブロックに分割して管理するシステム制御部2と、を備えたファクシミリ装置において、システム制御部2は、メモリ10、11のメモリ容量を検知して、SAFメモリ10のメモリ容量に応じて初期設定されている管理ブロックサイズの大きさを、ハードディスクメモリ11が増設された時点で、両メモリ10、11の総メモリ容量に応じて初期設定よりも大きな管理ブロックサイズに設定変更する。



【特許請求の範囲】

【請求項1】画情報を蓄積する画情報蓄積手段と、
該画情報蓄積手段の蓄積領域を複数の管理ブロックに分割して管理する管理手段と、を備えたファクシミリ装置において、
前記画情報蓄積手段の蓄積容量を検知する容量検知手段を設け、
前記管理手段が、前記画情報蓄積手段の蓄積容量が大きいほど、前記管理ブロックのサイズが大きくなるように、前記容量検知手段の検知結果に応じて管理ブロックのサイズを設定することを特徴とするファクシミリ装置。

【請求項2】画情報を蓄積する複数の画情報蓄積手段と、
各画情報蓄積手段の蓄積領域を複数の管理ブロックに分割して管理する管理手段と、を備えたファクシミリ装置において、
前記各画情報蓄積手段の蓄積容量を検知する容量検知手段を設け、
前記管理手段が、蓄積容量が大きな画情報蓄積手段ほど、前記管理ブロックのサイズが大きくなるように、前記容量検知手段の検知結果に応じて各画情報蓄積手段の管理ブロックのサイズを設定することを特徴とするファクシミリ装置。

【請求項3】画情報を蓄積する画情報蓄積手段と、
該画情報蓄積手段の蓄積領域を複数の管理ブロックに分割して管理する管理手段と、を備えたファクシミリ装置において、
前記管理ブロックのサイズを入力することが可能なブロックサイズ入力手段を設け、
前記管理手段が、前記管理ブロックのサイズを前記ブロックサイズ入力手段に入力されたサイズに変更すること
を特徴とするファクシミリ装置。

【発明の詳細な説明】

【0001】

【産業上の利用分野】本発明は、ファクシミリ装置に関し、特に、送信または受信画情報を蓄積することが可能なファクシミリ装置に関する。

【0002】

【従来の技術】従来、ファクシミリ装置においては、通信回線の使用効率を向上させるために、送信前または受信後の画情報を一旦蓄積することが可能な画情報蓄積メモリ（以下、SAFメモリともいう）を備えたものが知られている。また、このような画情報を蓄積することが可能なファクシミリ装置の殆どは、オプションでハードディスク等の大容量メモリをSAFメモリとして増設できるようにしている。そして、SAFメモリやオプションで増設された大容量メモリの蓄積領域は、一般に、ファクシミリ装置の製造段階で設定されたサイズの管理ブロックに分割されて管理されている。

【0003】

【発明が解決しようとする課題】しかしながら、従来のファクシミリ装置にあっては、SAFメモリやオプションで増設された大容量メモリは、常に同一サイズの管理ブロックに分割されて管理されるようになっていたため、メモリ容量（蓄積容量）が大きくなると、大きくなった分だけ管理ブロックの数が増大して、管理が煩雑になるといった不具合が発生し、一方、管理ブロックのサイズを予め大きく設定することも可能であるが、大容量メモリが増設されていない場合には、メモリ容量に比較して管理ブロック毎のオーバーヘッドが大きくなるため、メモリの使用効率が低下するといった問題点があった。

【0004】そこで、本発明は、管理ブロックのサイズを画情報蓄積手段の蓄積容量に応じて変化させることにより、ブロック管理を容易にしながら、画情報蓄積手段の使用効率を向上させることを課題としている。

【0005】

【課題を解決するための手段】請求項1記載の発明は、上記課題を解決するため、画情報を蓄積する画情報蓄積手段と、該画情報蓄積手段の蓄積領域を複数の管理ブロックに分割して管理する管理手段と、を備えたファクシミリ装置において、前記画情報蓄積手段の蓄積容量を検知する容量検知手段を設け、前記管理手段が、前記画情報蓄積手段の蓄積容量が大きいほど、前記管理ブロックのサイズが大きくなるように、前記容量検知手段の検知結果に応じて管理ブロックのサイズを設定すること
を特徴としている。

【0006】請求項2記載の発明は、上記課題を解決するため、画情報を蓄積する複数の画情報蓄積手段と、各画情報蓄積手段の蓄積領域を複数の管理ブロックに分割して管理する管理手段と、を備えたファクシミリ装置において、前記各画情報蓄積手段の蓄積容量を検知する容量検知手段を設け、前記管理手段が、蓄積容量が大きな画情報蓄積手段ほど、前記管理ブロックのサイズが大きくなるように、前記容量検知手段の検知結果に応じて各画情報蓄積手段の管理ブロックのサイズを設定すること
を特徴としている。

【0007】請求項3記載の発明は、上記課題を解決するため、画情報を蓄積する画情報蓄積手段と、該画情報蓄積手段の蓄積領域を複数の管理ブロックに分割して管理する管理手段と、を備えたファクシミリ装置において、前記管理ブロックのサイズを入力することが可能なブロックサイズ入力手段を設け、前記管理手段が、前記管理ブロックのサイズを前記ブロックサイズ入力手段に入力されたサイズに変更すること
を特徴としている。

【0008】

【作用】請求項1記載の発明では、画情報蓄積手段の蓄積容量が大きいほど、管理ブロックのサイズが大きくなるように、管理ブロックのサイズが設定される。したがって、大容量メモリの増設等によって画情報蓄積手段の

3

蓄積容量が増大した場合、管理ブロックのサイズが大きくなるように自動的に設定される。したがって、管理ブロックの数が過度に増大することなく、画情報蓄積手段が有効に使用される。

【0009】請求項2記載の発明では、蓄積容量が大きな画情報蓄積手段ほど、前記管理ブロックのサイズが大きくなるように、各画情報蓄積手段の管理ブロックのサイズが設定される。したがって、例えば、標準装備された小容量メモリに加えて大容量メモリが増設された場合、大容量メモリの管理ブロックのサイズが、小容量メモリのものよりも大きくなるように自動的に設定される。この結果、蓄積容量に応じた適切なブロックサイズの設定が可能になり、管理される管理ブロックの数が過度に増加するのが防止され、管理ブロック毎のオーバーヘッドを極力少なくすることが可能になる。

【0010】請求項3記載の発明では、管理ブロックのサイズが、前記ブロックサイズ管理手段に入力されたサイズに変更される。したがって、例えば、大容量メモリが増設された場合にも、管理ブロックのサイズを小さく設定できる。この結果、ファクシミリ装置の使用環境に応じたブロックサイズに設定されるので、管理ブロックが過度に大きくなるのが防止され、画情報蓄積手段が効率よく使用される。

【0011】

【実施例】以下、本発明を図面に基づいて説明する。図1は本発明に係るファクシミリ装置の一実施例を示すブロック図である。まず、構成を説明する。図1において、ファクシミリ装置1は、システム制御部2、システム情報記憶部3、ラインメモリ4、操作/表示部5、G3/G4通信制御部6、スキャナ7、プロッタ8、DCR9、SAFメモリ10およびハードディスク11等から構成されている。

【0012】システム情報記憶部3は、ファクシミリ装置1を駆動させるための各種のプログラムおよびデータが記憶されている。システム制御部2は、システム情報記憶部3に記憶された各種のプログラムおよびデータに基づきファクシミリ装置1の機能を制御するものである。また、ラインメモリ4は、受信した画情報を記録紙に記録する前に一時的に蓄えたり、送信するためにスキャナ7から読み込んだ画情報をDCR9により符号化する前に一時的に記憶するものである。さらに、操作/表示部5は、オペレータがファクシミリ装置1に入力したり、操作方法や動作モードを表示する。スキャナ7は、送信する原稿の画像を読みとることができる。プロッタ8は、受信した画情報を記録紙に記録するものである。さらに、DCR9は、符号化および復号化することができる。SAFメモリ10およびハードディスクメモリ11は、送信する際に符号化された画情報や受信した際に復号化された画情報を蓄えることができる。なお、SAFメモリ10は、ファクシミリ装置に標準装備されたメ

4

モリであり、ハードディスクメモリ11は、ファクシミリ装置にオプションで増設することができる拡張メモリである。このため、図1では、ハードディスクメモリ11を仮想線により示している。

【0013】ここで、上述のファクシミリ装置1が、請求項1記載の発明に係るファクシミリ装置の一例である場合について以下に説明する。本実施例では、ファクシミリ装置1において、SAFメモリ10およびハードディスクメモリ11が、画情報蓄積手段を構成し、画情報を蓄積するものである。システム制御部2が、管理手段および容量検知手段を構成する。すなわち、システム制御部2は、画情報蓄積手段の蓄積領域を複数の管理ブロックに分割して管理し、また、画情報蓄積手段の蓄積容量を検知するものである。そして、システム制御部2は、画情報蓄積手段の蓄積容量が大きいほど、管理ブロックのサイズが大きくなるように、容量検知手段の検知結果に応じて管理ブロックのサイズを設定する。詳しくは、SAFメモリ10およびハードディスクメモリ11のメモリ領域は、図2に示されるような複数の同一サイズのブロックに分割され、各ブロックが未使用状態なのかあるいは確保済状態なのかを解るように図3に示すような管理データが作成される。また、上記ブロックのサイズを可変設定することが可能なブロックサイズ管理データが作成されて、例えば、図4に示されるメモリ容量と管理ブロックサイズの関係に従って、SAFメモリ10あるいはハードディスクメモリ11の管理ブロックサイズが設定される。なお、本実施例では、SAFメモリ10のメモリ容量は1~2Mバイトであり、ファクシミリ装置の出荷段階でSAFメモリ10のブロックサイズは図4の関係より2Kバイトに設定されているものとする。

【0014】次に、図5を参照しつつ作用を説明する。なお、図5中のS₁₁~S₁₃はフローチャートの各ステップを表している。まず、ファクシミリ装置の起動後、ステップS₁₁でファクシミリ装置1のメモリ容量が変更されたかどうか判別され、変更されていれば、すなわち、オプションとしてハードディスクメモリ11が増設されていれば、S₁₂に移りシステム制御部2が、ファクシミリ装置1に接続されたSAFメモリ10とハードディスクメモリ11の総メモリ容量を検知する。そして、S₁₃に移り、S₁₂で検知した総メモリ容量が例えば32~64Mバイトである場合、システム制御部2が、SAFメモリ10とハードディスクメモリ11のメモリ領域を32Kバイトに再設定する。また、S₁₁でメモリ容量が変更されていなければ、すなわち、オプションとしてハードディスクメモリ11が増設されていない場合、処理をそのまま終了し、SAFメモリ10の管理ブロックサイズの設定は1Kバイトのまま保持される。

【0015】上述のように本実施例では、接続されているメモリの総メモリ容量が大きくなると、その管理プロ

ックサイズを大きくして、適切な管理ブロックに自動的に分割することができるので、管理ブロックの数を過度に増大させることなく、メモリを効率的に使用することができる。ここで、上述のファクシミリ装置1が、請求項2記載の発明に係るファクシミリ装置の一例である場合について以下に説明する。

【0016】本実施例では、ファクシミリ装置1において、SAFメモリ10およびハードディスクメモリ11が、複数の画情報蓄積手段を構成し、画情報を蓄積するものである。システム制御部2は、管理手段および容量検知手段を構成する。すなわち、システム制御部2は、各画情報蓄積手段の蓄積領域を複数の管理ブロックに分割して管理し、また、各画情報蓄積手段の蓄積容量を検知する。そして、システム制御部2は、蓄積容量が大きな画情報蓄積手段ほど、管理ブロックのサイズが大きくなるように、容量検知手段の検知結果に応じて各画情報蓄積手段の管理ブロックのサイズを設定する。メモリの管理は、上述の実施例と同様の方法により管理される。また、本例においても、SAFメモリ10は標準装備されたメモリであり、そのメモリ容量は1~2Mバイトで、ファクシミリ装置の出荷段階でそのブロックサイズは図4の関係より2Kバイトに設定されている。

【0017】次に、図6を参照しつつ作用について説明する。なお、図6中のS₂₁~S₂₃はフローチャートの各ステップを示している。まず、ファクシミリ装置の起動後、S₂₁でメモリ容量が増設されたかどうかを判別され、増設されていれば、すなわち、オプションとしてハードディスクメモリ11が増設されていれば、S₂₂に移り、SAFメモリ10とハードディスクメモリ11のそれぞれのメモリ容量が検知される。次いで、S₂₃に移り、SAFメモリ10の管理ブロックのサイズはそのまま2Kバイトに設定され、ハードディスクメモリ11の管理ブロックのサイズは例えば32Kバイトに設定される。

【0018】上述のように本実施例では、ファクシミリ装置が画情報蓄積用に複数のメモリを有する場合、メモリ容量が大きいほど、ブロックサイズが大きくなるように、各メモリの管理ブロックのサイズを設定しているので、容量に応じた適切なブロックサイズの設定が可能になり、管理ブロック毎のオーバーヘッドを極力少なくすることができ、各メモリを有効に使用することができる。

【0019】ここで、上述のファクシミリ装置1が、請求項3記載の発明に係るファクシミリ装置の一例である場合について以下に説明する。本実施例では、SAFメモリ10およびハードディスクメモリ11が、画情報蓄積手段を構成し、画情報を蓄積するものである。システム制御部2は、管理手段を構成し、画情報蓄積手段の蓄積領域を複数の管理ブロックに分割して管理するものである。操作/表示部5は、ブロックサイズ入力手段を構成し、管理ブロックのサイズを入力することができる。

そして、システム制御部2は、管理ブロックのサイズをブロックサイズ入力手段に入力されたサイズに変更するものである。メモリの管理は、上述の実施例と同様の方法により管理される。

【0020】次に、図7を参照しつつ作用を説明する。なお、図7中のS₃₁およびS₃₂は、フローチャートの各ステップを示している。まず、S₃₁でオペレータにより操作/表示部5から、SAFメモリ10およびハードディスクメモリ11の管理ブロックのブロックサイズを指定する入力があった場合、S₃₂に移り、SAFメモリ10およびハードディスクメモリ11の管理ブロックのブロックサイズを、S₃₁で指定されたブロックサイズに設定変更する。

【0021】上述のように本実施例では、操作/表示部5を操作することにより、SAFメモリ10およびハードディスクメモリ11の管理ブロックサイズを変更することができるので、ファクシミリ装置に装備されたメモリの使用状況に応じてその管理ブロックサイズを任意のサイズに変更することができる。例えば、大容量メモリが増設された場合にも、管理ブロックのサイズが大きくなるように設定変更することができるので、管理ブロックのサイズが過度に大きくなるのを防止することができ、メモリを効率よく使用することが可能になる。

【0022】

【発明の効果】請求項1記載の発明によれば、画情報蓄積手段の蓄積容量が大きくなると、その管理ブロックのサイズが大きくなるので、管理ブロックのサイズが過度に大きくなるのが防止されて、画情報蓄積手段を効率的に使用することができる。請求項2記載の発明によれば、画情報蓄積手段が複数ある場合に、蓄積容量が大きい画情報蓄積手段ほど、管理ブロックのサイズが大きくなるように設定されるので、蓄積容量に応じた適切なブロックサイズで各画情報蓄積手段を管理することができ、画情報蓄積手段を効率的に使用することができる。

【0023】請求項3記載の発明によれば、画情報蓄積手段の管理ブロックサイズを指定することができるので、画情報蓄積手段の使用状況に応じて最適なブロックサイズを設定することができ、画情報蓄積手段を効率的に使用することができる。

【図面の簡単な説明】

【図1】本発明に係るファクシミリ装置の一実施例を示すそのブロック図。

【図2】そのSAFメモリおよびハードディスクメモリの管理ブロックを示すメモリマップ。

【図3】そのSAFメモリおよびハードディスクメモリの管理ブロックの使用状態を説明する図。

【図4】そのSAFメモリおよびハードディスクメモリのメモリ容量と管理ブロックの関係を示すグラフ。

【図5】請求項1記載の発明に係るファクシミリ装置の一実施例における管理ブロックサイズの設定変更フロー

を示す図。

【図6】請求項2記載の発明に係るファクシミリ装置の一実施例における管理ブロックサイズの設定変更フローを示す図。

【図7】請求項3記載の発明に係るファクシミリ装置の一実施例における管理ブロックサイズの設定変更フローを示す図。

【符号の説明】

1 ファクシミリ装置

2 システム制御部（管理手段、容量検知手段）

* 3 システム情報記憶部

4 ラインメモリ

5 操作／表示部

6 G2/G4通信制御部

7 スキャナ

8 プロッタ

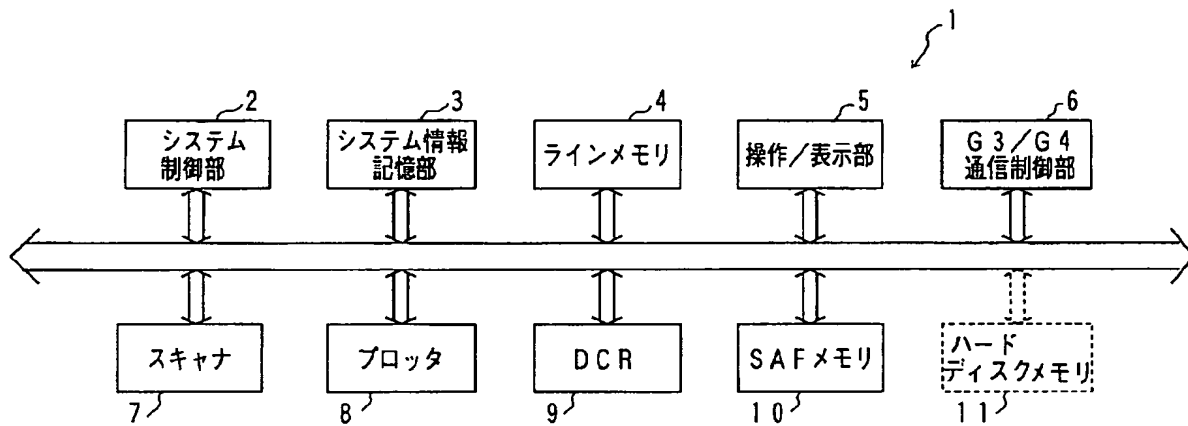
9 DCR

10 SAFメモリ（画情報蓄積手段）

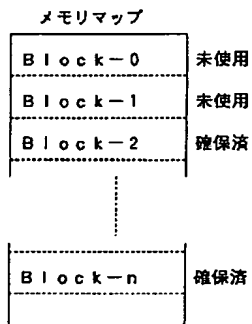
11 ハードディスクメモリ（画情報蓄積手段）

*10

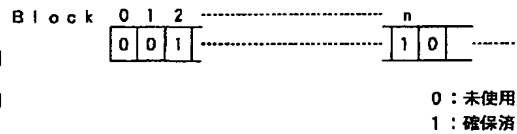
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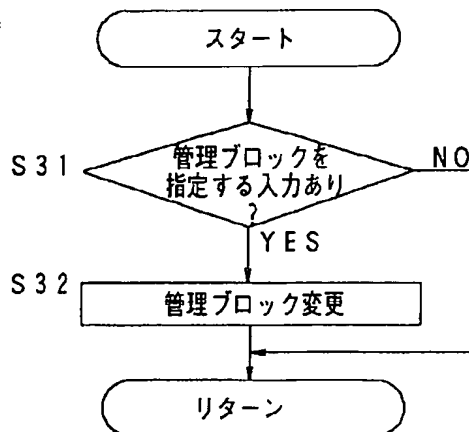
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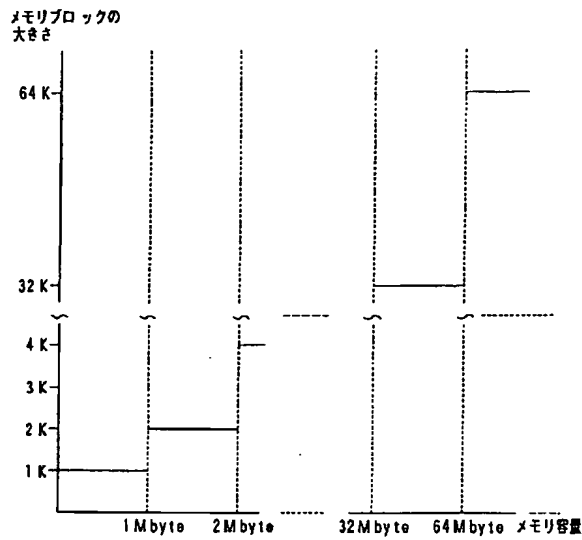
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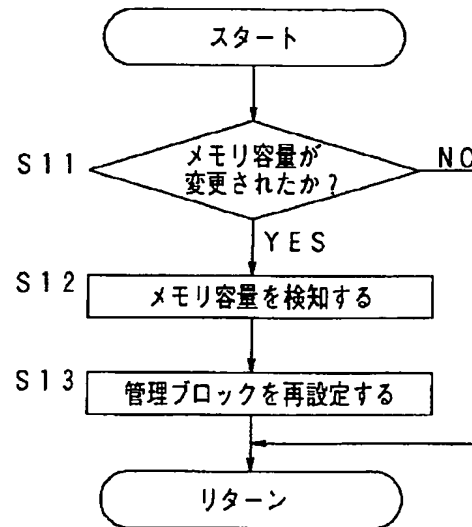
【図7】



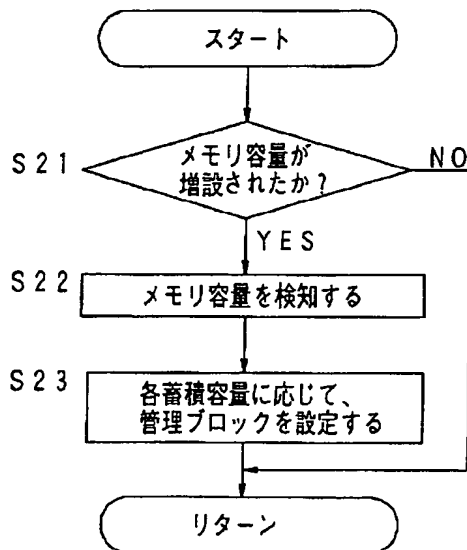
【図4】



【図5】



【図6】



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CLAIMS

[Claim(s)]

[Claim 1]A capacity detection means characterized by comprising the following to detect storage capacitance of said drawing information accumulation means in a facsimile machine is formed, A facsimile machine characterized by setting up size of a management block according to a detection result of said capacity detection means so that storage capacitance of said drawing information accumulation means is [said management tool] large, and size of said management block may become large.

A drawing information accumulation means which accumulates drawing information.

A management tool which divides a storage region of this drawing information accumulation means into two or more management blocks, and manages it.

[Claim 2]A capacity detection means characterized by comprising the following to detect storage capacitance of each of said drawing information accumulation means in a facsimile machine is formed, A facsimile machine setting up size of a management block of each drawing information accumulation means according to a detection result of said capacity detection means as a drawing information accumulation means whose storage capacitance is [said management tool] big so that size of said management block may become large.

Two or more drawing information accumulation means which accumulate drawing information.

A management tool which divides a storage region of each drawing information accumulation means into two or more management blocks, and manages it.

[Claim 3]In a facsimile machine characterized by comprising the following, a block size input means which can input size of said management block is established, A facsimile machine with which said management tool is characterized by changing size of said management block into size into which it was inputted by said block size input means.

A drawing information accumulation means which accumulates drawing information.

A management tool which divides a storage region of this drawing information accumulation means into two or more management blocks, and manages it.

[Translation done.]

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DETAILED DESCRIPTION

[Detailed Description of the Invention]

[0001]

[Industrial Application]Especially this invention relates to the facsimile machine which can accumulate transmission or receiving drawing information about a facsimile machine.

[0002]

[Description of the Prior Art]Conventionally, in the facsimile machine, in order to raise the utilization ratio of a communication line, the thing provided with the drawing information storage memory (henceforth a SAF memory) which can once accumulate the drawing information before transmission and after reception is known. Most facsimile machines which can accumulate such drawing information can extend bulk memories, such as a hard disk, now as a SAF memory as an option. And generally the storage region of the bulk memory extended as the SAF memory or the option is divided and managed by the management block of the size set up by the manufacturing stage of the facsimile machine.

[0003]

[Problem(s) to be Solved by the Invention]However, if it is in the conventional facsimile machine, The bulk memory extended as the SAF memory or the option, Since it is always divided and managed by the management block of the same size, If memory space (storage capacitance) becomes large, it is also possible for the number of management blocks to increase, for the fault that management becomes complicated to occur, and only for the part which became large to set up the size of a management block greatly beforehand on the other hand, but. Since the overhead for every management block became large as compared with memory space when the bulk memory is not extended, there was a problem that the utilization ratio of a memory fell.

[0004]Then, this invention makes it the technical problem to raise the utilization ratio of a drawing information accumulation means, making block management easy by changing the

size of a management block according to the storage capacitance of a drawing information accumulation means.

[0005]

[Means for Solving the Problem]In a facsimile machine provided with a drawing information accumulation means which accumulates drawing information, and a management tool which divides a storage region of this drawing information accumulation means into two or more management blocks, and manages it in order that the invention according to claim 1 might solve an aforementioned problem, It is characterized by setting up size of a management block according to a detection result of said capacity detection means so that a capacity detection means to detect storage capacitance of said drawing information accumulation means is formed, storage capacitance of said drawing information accumulation means is [said management tool] large and size of said management block may become large.

[0006]In a facsimile machine provided with two or more drawing information accumulation means which accumulate drawing information, and a management tool which divides a storage region of each drawing information accumulation means into two or more management blocks, and manages it in order that the invention according to claim 2 might solve an aforementioned problem, Form a capacity detection means to detect storage capacitance of each of said drawing information accumulation means, and a drawing information accumulation means whose storage capacitance is [said management tool] bigger so that size of said management block may become large, It is characterized by setting up size of a management block of each drawing information accumulation means according to a detection result of said capacity detection means.

[0007]In a facsimile machine provided with a drawing information accumulation means which accumulates drawing information, and a management tool which divides a storage region of this drawing information accumulation means into two or more management blocks, and manages it in order that the invention according to claim 3 might solve an aforementioned problem, A block size input means which can input size of said management block is established, and said management tool is characterized by changing into size into which size of said management block was inputted by said block size input means.

[0008]

[Function]In the invention according to claim 1, the size of a management block is set up so that the storage capacitance of a drawing information accumulation means is large, and the size of a management block may become large. Therefore, when the storage capacitance of a drawing information accumulation means increases by extension of a bulk memory, etc., it is automatically set up so that the size of a management block may become large. Therefore, a drawing information accumulation means is used effectively, without the number of management blocks increasing too much.

[0009]In the invention according to claim 2, the size of the management block of each drawing information accumulation means is set up for a drawing information accumulation means with bigger storage capacitance so that the size of said management block may become large. Therefore, when a bulk memory is extended for example, in addition to the small capacity memory equipped standardly, the size of the management block of a bulk memory is set up automatically become larger than the thing of a small capacity memory. As a result, it becomes possible to prevent the number of the management blocks managed from setting out of the suitable block size according to storage capacitance being attained, and increasing too much, and to lessen the overhead for every management block as much as possible.

[0010]The size of a management block is changed into the size inputted into said block size management tool in the invention according to claim 3. Therefore, for example, also when a bulk memory is extended, the size of a management block can be set up small. As a result, since it is set as the block size according to the operating environment of the facsimile machine, a management block is prevented from becoming large too much, and a drawing information accumulation means is used efficiently.

[0011]

[Example]Hereafter, this invention is explained based on a drawing. Drawing 1 is a block diagram showing one example of the facsimile machine concerning this invention. First, composition is explained. In drawing 1, the facsimile machine 1 comprises the system control part 2, the system-information storage parts store 3, the line memory 4, the operation/indicator 5, the G3/G4 communication control part 6, the scanner 7, the plotter 8, DCR9, SAF memory 10, and hard disk 11 grade.

[0012]Various kinds of programs and data for the system-information storage parts store 3 to make the facsimile machine 1 driving are memorized. The system control part 2 controls the function of the facsimile machine 1 based on various kinds of programs and data which were memorized by the system-information control section 3. The line memory 4 is temporarily memorized, before coding the drawing information read from the scanner 7 by DCR9, in order to store temporarily or to transmit, before recording the received drawing information on a recording form. An operator inputs operation / indicator 5 into the facsimile machine 1, or it displays an operation method and operational mode. The scanner 7 can read the picture of a manuscript to transmit. The plotter 8 records the received drawing information on a recording form. DCR9 can be coded and decrypted. SAF memory 10 and the hard disk memory 11 can store the drawing information decrypted when it received, the drawing information coded when transmitting, and. SAF memory 10 is a memory with which the facsimile machine was equipped standardly.

The hard disk memory 11 is an expanded memory which can be extended as an option to a facsimile machine.

For this reason, in drawing 1, the imaginary line shows the hard disk memory 11.

[0013]Here, the case where the above-mentioned facsimile machine 1 is an example of the facsimile machine concerning the invention according to claim 1 is explained below. In this example, in the facsimile machine 1, SAF memory 10 and the hard disk memory 11 constitute a drawing information accumulation means, and accumulate drawing information. The system control part 2 constitutes a management tool and a capacity detection means. That is, the system control part 2 divides the storage region of a drawing information accumulation means into two or more management blocks, and manages it, and detects the storage capacitance of a drawing information accumulation means. And the system control part 2 sets up the size of a management block according to the detection result of a capacity detection means so that the storage capacitance of a drawing information accumulation means is large, and the size of a management block may become large. the memory area of SAF memory 10 and the hard disk memory 11 is divided into the block of two or more same sizes as shown in drawing 2 in detail, and each block is an unused state -- or management data as it indicated to drawing 3 that understands whether to be in the state of securing is created. According to the relation between the memory space which the block size management data which can carry out variable setting out of the size of the above-mentioned block is created, for example, is shown in drawing 4, and management block size, the management block size of SAF memory 10 or the hard disk memory 11 is set up. In this example, the memory space of SAF memory 10 shall be 1-2 M bytes, and the block size of SAF memory 10 shall be set as 2 K bytes from the relation of drawing 4 according to the shipping stage of a facsimile machine.

[0014]Next, an operation is explained, referring to drawing 5. S_{11} in drawing 5 - S_{13} express each step of the flow chart. First, after starting of a facsimile machine, if it is distinguished and changed whether the memory space of the facsimile machine 1 was changed by step S_{11} , That is, if the hard disk memory 11 is extended as an option, it will move to S_{12} and the system control part 2 will detect the total memory space of SAF memory 10 and the hard disk memory 11 connected to the facsimile machine 1. And it moves to S_{13} , and when the **** memory space detected by S_{12} is 32-64 M bytes, the system control part 2 resets the memory area of SAF memory 10 and the hard disk memory 11 to 32 K bytes. When the hard disk memory 11 is not extended as an option if memory space is not changed by S_{11} namely, processing is ended as it is and setting out of the management block size of SAF memory 10 is held with 1 K byte.

[0015]By this example, a memory can be used efficiently as mentioned above, without increasing the number of management blocks too much, since the management block size can be enlarged and can be automatically divided into a suitable management block, if the total

memory space of the memory connected becomes large. Here, the case where the above-mentioned facsimile machine 1 is an example of the facsimile machine concerning the invention according to claim 2 is explained below.

[0016]In this example, in the facsimile machine 1, SAF memory 10 and the hard disk memory 11 constitute two or more drawing information accumulation means, and accumulate drawing information. The system control part 2 constitutes a management tool and a capacity detection means. That is, the system control part 2 divides the storage region of each drawing information accumulation means into two or more management blocks, and manages it, and detects the storage capacitance of each drawing information accumulation means. And the system control part 2 sets up the size of the management block of each drawing information accumulation means for a drawing information accumulation means with bigger storage capacitance according to the detection result of a capacity detection means so that the size of a management block may become large. Management of a memory is managed by the same method as an above-mentioned example. Also in this example, SAF memory 10 is a memory equipped standardly, the memory space is 1-2 M bytes, and the block size is set as 2 K bytes from the relation of drawing 4 by the shipping stage of the facsimile machine.

[0017]Next, an operation is explained, referring to drawing 6. S_{21} in drawing 6 - S_{23} show each step of the flow chart. First, after starting of a facsimile machine, if it is distinguished and extended whether memory space was extended by S_{21} . That is, if the hard disk memory 11 is extended as an option, it will move to S_{22} and each memory space of SAF memory 10 and the hard disk memory 11 will be detected. Subsequently, it moves to S_{23} , the size of the management block of SAF memory 10 is set as 2 K bytes as it is, and the size of the management block of the hard disk memory 11 is set as 32 K bytes.

[0018]As mentioned above, by this example, since the size of the management block of each memory is set up so that memory space is large, and block size may become large when a facsimile machine has two or more memories in drawing information storage, Setting out of the suitable block size according to capacity can be attained, the overhead for every management block can be lessened as much as possible, and each memory can be used effectively.

[0019]Here, the case where the above-mentioned facsimile machine 1 is an example of the facsimile machine concerning the invention according to claim 3 is explained below. In this example, SAF memory 10 and the hard disk memory 11 constitute a drawing information accumulation means, and accumulate drawing information. The system control part 2 constitutes a management tool, divides the storage region of a drawing information accumulation means into two or more management blocks, and manages it. Operation / indicator 5 can constitute a block size input means, and can input the size of a management block. And the system control part 2 changes the size of a management block into the size into

which it was inputted by the block size input means. Management of a memory is managed by the same method as an above-mentioned example.

[0020]Next, an operation is explained, referring to drawing 7. S_{31} and S_{32} in drawing 7 show each step of the flow chart. First, when there is an input which specifies the block size of the management block of SAF memory 10 and the hard disk memory 11 from operation / indicator 5 with an operator by S_{31} , It moves to S_{32} and the setting variation of the block size of the management block of SAF memory 10 and the hard disk memory 11 is carried out to the block size specified by S_{31} .

[0021]Since the management block size of SAF memory 10 and the hard disk memory 11 can be changed by operating operation / indicator 5 by this example as mentioned above, The management block size can be changed into arbitrary sizes according to the operating condition of the memory with which the facsimile machine was equipped. For example, since a setting variation can be carried out so that the size of a management block may become large also when a bulk memory is extended, the size of a management block can be prevented from becoming large too much, and it becomes possible to use a memory efficiently.

[0022]

[Effect of the Invention]According to the invention according to claim 1, since the size of the management block will become large if the storage capacitance of a drawing information accumulation means becomes large, the size of a management block is prevented from becoming large too much, and it can use a drawing information accumulation means efficiently. Since according to the invention according to claim 2 a drawing information accumulation means with larger storage capacitance is set up so that the size of a management block may become large when there are two or more drawing information accumulation means, Each drawing information accumulation means can be managed in the suitable block size according to storage capacitance, and a drawing information accumulation means can be used efficiently.

[0023]Since the management block size of a drawing information accumulation means can be specified according to the invention according to claim 3, the optimal block size can be set up according to the operating condition of a drawing information accumulation means, and a drawing information accumulation means can be used efficiently.

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TECHNICAL FIELD

[Industrial Application]Especially this invention relates to the facsimile machine which can accumulate transmission or receiving drawing information about a facsimile machine.

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PRIOR ART

[Description of the Prior Art]Conventionally, in the facsimile machine, in order to raise the utilization ratio of a communication line, the thing provided with the drawing information storage memory (henceforth a SAF memory) which can once accumulate the drawing information before transmission and after reception is known. Most facsimile machines which can accumulate such drawing information can extend bulk memories, such as a hard disk, now as a SAF memory as an option. And generally the storage region of the bulk memory extended as the SAF memory or the option is divided and managed by the management block of the size set up by the manufacturing stage of the facsimile machine.

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EFFECT OF THE INVENTION

[Effect of the Invention]According to the invention according to claim 1, since the size of the management block will become large if the storage capacitance of a drawing information accumulation means becomes large, the size of a management block is prevented from becoming large too much, and it can use a drawing information accumulation means efficiently. Since according to the invention according to claim 2 a drawing information accumulation means with larger storage capacitance is set up so that the size of a management block may become large when there are two or more drawing information accumulation means, Each drawing information accumulation means can be managed in the suitable block size according to storage capacitance, and a drawing information accumulation means can be used efficiently.

[0023]Since the management block size of a drawing information accumulation means can be specified according to the invention according to claim 3, the optimal block size can be set up according to the operating condition of a drawing information accumulation means, and a drawing information accumulation means can be used efficiently.

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TECHNICAL PROBLEM

[Problem(s) to be Solved by the Invention]However, if it is in the conventional facsimile machine, The bulk memory extended as the SAF memory or the option, Since it is always divided and managed by the management block of the same size, If memory space (storage capacitance) becomes large, it is also possible for the number of management blocks to increase, for the fault that management becomes complicated to occur, and only for the part which became large to set up the size of a management block greatly beforehand on the other hand, but. Since the overhead for every management block became large as compared with memory space when the bulk memory is not extended, there was a problem that the utilization ratio of a memory fell.

[0004]Then, this invention makes it the technical problem to raise the utilization ratio of a drawing information accumulation means, making block management easy by changing the size of a management block according to the storage capacitance of a drawing information accumulation means.

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MEANS

[Means for Solving the Problem]In a facsimile machine provided with a drawing information accumulation means which accumulates drawing information, and a management tool which divides a storage region of this drawing information accumulation means into two or more management blocks, and manages it in order that the invention according to claim 1 might solve an aforementioned problem, It is characterized by setting up size of a management block according to a detection result of said capacity detection means so that a capacity detection means to detect storage capacitance of said drawing information accumulation means is formed, storage capacitance of said drawing information accumulation means is [said management tool] large and size of said management block may become large.

[0006]In a facsimile machine provided with two or more drawing information accumulation means which accumulate drawing information, and a management tool which divides a storage region of each drawing information accumulation means into two or more management blocks, and manages it in order that the invention according to claim 2 might solve an aforementioned problem, Form a capacity detection means to detect storage capacitance of each of said drawing information accumulation means, and a drawing information accumulation means whose storage capacitance is [said management tool] bigger so that size of said management block may become large, It is characterized by setting up size of a management block of each drawing information accumulation means according to a detection result of said capacity detection means.

[0007]In a facsimile machine provided with a drawing information accumulation means which accumulates drawing information, and a management tool which divides a storage region of this drawing information accumulation means into two or more management blocks, and manages it in order that the invention according to claim 3 might solve an aforementioned problem, A block size input means which can input size of said management block is established, and said management tool is characterized by changing into size into which size

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OPERATION

[Function]In the invention according to claim 1, the size of a management block is set up so that the storage capacitance of a drawing information accumulation means is large, and the size of a management block may become large. Therefore, when the storage capacitance of a drawing information accumulation means increases by extension of a bulk memory, etc., it is automatically set up so that the size of a management block may become large. Therefore, a drawing information accumulation means is used effectively, without the number of management blocks increasing too much.

[0009]In the invention according to claim 2, the size of the management block of each drawing information accumulation means is set up for a drawing information accumulation means with bigger storage capacitance so that the size of said management block may become large. Therefore, when a bulk memory is extended for example, in addition to the small capacity memory equipped standardly, the size of the management block of a bulk memory is set up automatically become larger than the thing of a small capacity memory. As a result, it becomes possible to prevent the number of the management blocks managed from setting out of the suitable block size according to storage capacitance being attained, and increasing too much, and to lessen the overhead for every management block as much as possible.

[0010]The size of a management block is changed into the size inputted into said block size management tool in the invention according to claim 3. Therefore, for example, also when a bulk memory is extended, the size of a management block can be set up small. As a result, since it is set as the block size according to the operating environment of the facsimile machine, a management block is prevented from becoming large too much, and a drawing information accumulation means is used efficiently.

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EXAMPLE

[Example]Hereafter, this invention is explained based on a drawing. Drawing 1 is a block diagram showing one example of the facsimile machine concerning this invention. First, composition is explained. In drawing 1, the facsimile machine 1 comprises the system control part 2, the system-information storage parts store 3, the line memory 4, the operation/indicator 5, the G3/G4 communication control part 6, the scanner 7, the plotter 8, DCR9, SAF memory 10, and hard disk 11 grade.

[0012]Various kinds of programs and data for the system-information storage parts store 3 to make the facsimile machine 1 driving are memorized. The system control part 2 controls the function of the facsimile machine 1 based on various kinds of programs and data which were memorized by the system-information control section 3. The line memory 4 is temporarily memorized, before coding the drawing information read from the scanner 7 by DCR9, in order to store temporarily or to transmit, before recording the received drawing information on a recording form. An operator inputs operation / indicator 5 into the facsimile machine 1, or it displays an operation method and operational mode. The scanner 7 can read the picture of a manuscript to transmit. The plotter 8 records the received drawing information on a recording form. DCR9 can be coded and decrypted. SAF memory 10 and the hard disk memory 11 can store the drawing information decrypted when it received, the drawing information coded when transmitting, and. SAF memory 10 is a memory with which the facsimile machine was equipped standardly.

The hard disk memory 11 is an expanded memory which can be extended as an option to a facsimile machine.

For this reason, in drawing 1, the imaginary line shows the hard disk memory 11.

[0013]Here, the case where the above-mentioned facsimile machine 1 is an example of the facsimile machine concerning the invention according to claim 1 is explained below. In this example, in the facsimile machine 1, SAF memory 10 and the hard disk memory 11 constitute

a drawing information accumulation means, and accumulate drawing information. The system control part 2 constitutes a management tool and a capacity detection means. That is, the system control part 2 divides the storage region of a drawing information accumulation means into two or more management blocks, and manages it, and detects the storage capacitance of a drawing information accumulation means. And the system control part 2 sets up the size of a management block according to the detection result of a capacity detection means so that the storage capacitance of a drawing information accumulation means is large, and the size of a management block may become large. the memory area of SAF memory 10 and the hard disk memory 11 is divided into the block of two or more same sizes as shown in drawing 2 in detail, and each block is an unused state -- or management data as it indicated to drawing 3 that understands whether to be in the state of securing is created. According to the relation between the memory space which the block size management data which can carry out variable setting out of the size of the above-mentioned block is created, for example, is shown in drawing 4, and management block size, the management block size of SAF memory 10 or the hard disk memory 11 is set up. In this example, the memory space of SAF memory 10 shall be 1-2 M bytes, and the block size of SAF memory 10 shall be set as 2 K bytes from the relation of drawing 4 according to the shipping stage of a facsimile machine.

[0014]Next, an operation is explained, referring to drawing 5. S_{11} in drawing 5 - S_{13} express each step of the flow chart. First, after starting of a facsimile machine, if it is distinguished and changed whether the memory space of the facsimile machine 1 was changed by step S_{11} , That is, if the hard disk memory 11 is extended as an option, it will move to S_{12} and the system control part 2 will detect the total memory space of SAF memory 10 and the hard disk memory 11 connected to the facsimile machine 1. And it moves to S_{13} , and when the **** memory space detected by S_{12} is 32-64 M bytes, the system control part 2 resets the memory area of SAF memory 10 and the hard disk memory 11 to 32 K bytes. When the hard disk memory 11 is not extended as an option if memory space is not changed by S_{11} namely, processing is ended as it is and setting out of the management block size of SAF memory 10 is held with 1 K byte.

[0015]By this example, a memory can be used efficiently as mentioned above, without increasing the number of management blocks too much, since the management block size can be enlarged and can be automatically divided into a suitable management block, if the total memory space of the memory connected becomes large. Here, the case where the above-mentioned facsimile machine 1 is an example of the facsimile machine concerning the invention according to claim 2 is explained below.

[0016]In this example, in the facsimile machine 1, SAF memory 10 and the hard disk memory

11 constitute two or more drawing information accumulation means, and accumulate drawing information. The system control part 2 constitutes a management tool and a capacity detection means. That is, the system control part 2 divides the storage region of each drawing information accumulation means into two or more management blocks, and manages it, and detects the storage capacitance of each drawing information accumulation means. And the system control part 2 sets up the size of the management block of each drawing information accumulation means for a drawing information accumulation means with bigger storage capacitance according to the detection result of a capacity detection means so that the size of a management block may become large. Management of a memory is managed by the same method as an above-mentioned example. Also in this example, SAF memory 10 is a memory equipped standardly, the memory space is 1-2 M bytes, and the block size is set as 2 K bytes from the relation of drawing 4 by the shipping stage of the facsimile machine.

[0017]Next, an operation is explained, referring to drawing 6. S_{21} in drawing 6 - S_{23} show each step of the flow chart. First, after starting of a facsimile machine, if it is distinguished and extended whether memory space was extended by S_{21} . That is, if the hard disk memory 11 is extended as an option, it will move to S_{22} and each memory space of SAF memory 10 and the hard disk memory 11 will be detected. Subsequently, it moves to S_{23} , the size of the management block of SAF memory 10 is set as 2 K bytes as it is, and the size of the management block of the hard disk memory 11 is set as 32 K bytes.

[0018]As mentioned above, by this example, since the size of the management block of each memory is set up so that memory space is large, and block size may become large when a facsimile machine has two or more memories in drawing information storage, Setting out of the suitable block size according to capacity can be attained, the overhead for every management block can be lessened as much as possible, and each memory can be used effectively.

[0019]Here, the case where the above-mentioned facsimile machine 1 is an example of the facsimile machine concerning the invention according to claim 3 is explained below. In this example, SAF memory 10 and the hard disk memory 11 constitute a drawing information accumulation means, and accumulate drawing information. The system control part 2 constitutes a management tool, divides the storage region of a drawing information accumulation means into two or more management blocks, and manages it. Operation / indicator 5 can constitute a block size input means, and can input the size of a management block. And the system control part 2 changes the size of a management block into the size into which it was inputted by the block size input means. Management of a memory is managed by the same method as an above-mentioned example.

[0020]Next, an operation is explained, referring to drawing 7. S_{31} and S_{32} in drawing 7 show each step of the flow chart. First, when there is an input which specifies the block size of the

management block of SAF memory 10 and the hard disk memory 11 from operation / indicator 5 with an operator by S_{31} . It moves to S_{32} and the setting variation of the block size of the management block of SAF memory 10 and the hard disk memory 11 is carried out to the block size specified by S_{31} .

[0021] Since the management block size of SAF memory 10 and the hard disk memory 11 can be changed by operating operation / indicator 5 by this example as mentioned above, The management block size can be changed into arbitrary sizes according to the operating condition of the memory with which the facsimile machine was equipped. For example, since a setting variation can be carried out so that the size of a management block may become large also when a bulk memory is extended, the size of a management block can be prevented from becoming large too much, and it becomes possible to use a memory efficiently.

[Translation done.]

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DESCRIPTION OF DRAWINGS

[Brief Description of the Drawings]

[Drawing 1]The block diagram showing one example of the facsimile machine concerning this invention.

[Drawing 2]The memory map in which the management block of the SAF memory and a hard disk memory is shown.

[Drawing 3]The figure explaining the condition of use of the management block of the SAF memory and a hard disk memory.

[Drawing 4]The graph which shows the memory space of the SAF memory and a hard disk memory, and the relation of a management block.

[Drawing 5]The figure showing the setting variation flow of the management block size in one example of the facsimile machine concerning the invention according to claim 1.

[Drawing 6]The figure showing the setting variation flow of the management block size in one example of the facsimile machine concerning the invention according to claim 2.

[Drawing 7]The figure showing the setting variation flow of the management block size in one example of the facsimile machine concerning the invention according to claim 3.

[Description of Notations]

- 1 Facsimile machine
- 2 System control part (a management tool, a capacity detection means)
- 3 System-information storage parts store
- 4 Line memory
- 5 Operation/indicator
- 6 G2-/G4 communication control part
- 7 Scanner
- 8 Plotter
- 9 DCR

10 SAF memory (drawing information accumulation means)

11 Hard disk memory (drawing information accumulation means)

[Translation done.]

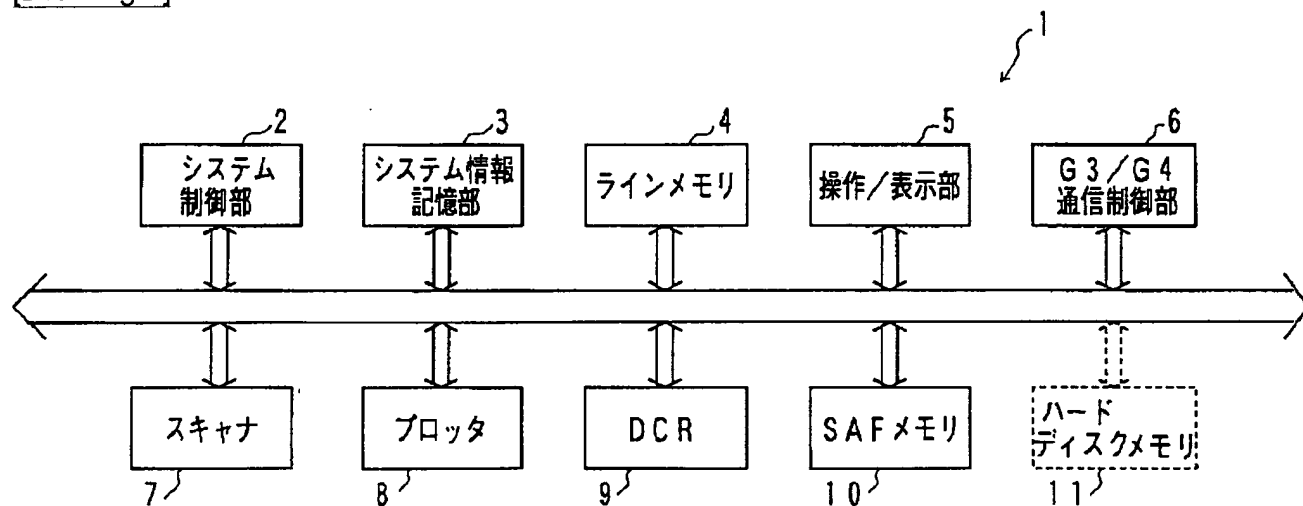
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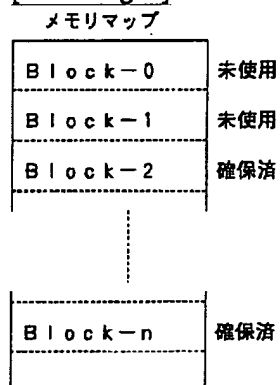
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DRAWINGS

[Drawing 1]



[Drawing 2]



[Drawing 3]



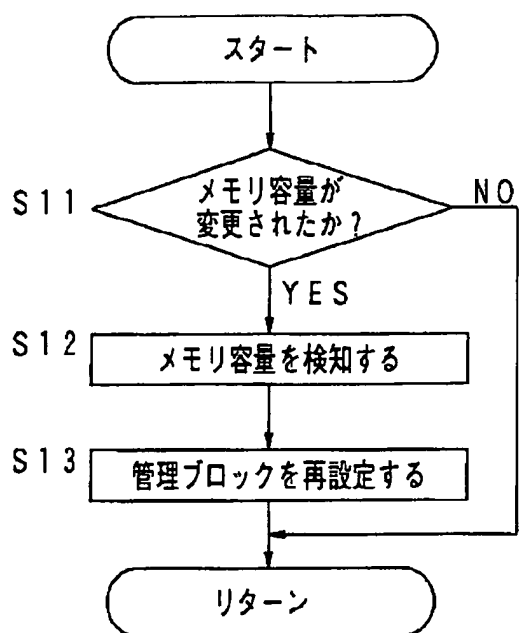
0 : 未使用
1 : 確保済

Year	Percentage of Respondents
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1992	75
1994	70
1996	78
1998	85
2000	90

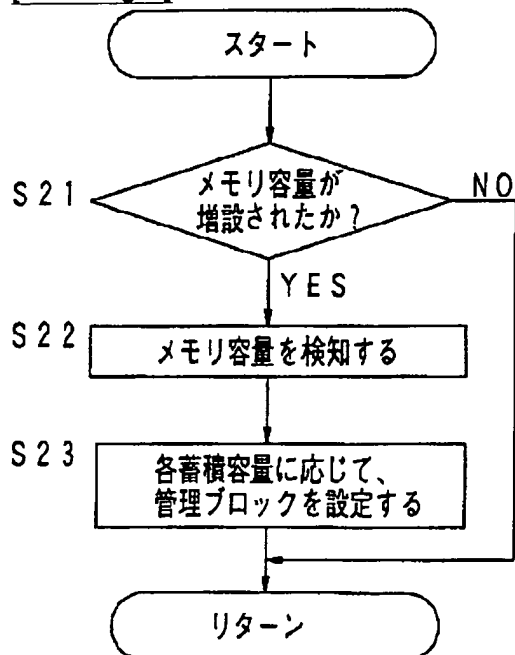


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[Drawing 6]



[Translation done.]